

Wooster Water Utilities

Project Status
Public Meeting
June 6, 2022

Biosolids Improvements Project Update

► Project Goals

- Focused Repair of Assets to Ensure Safe and Reliable Treatment
- Improved Digestion is Less Biosolids (Less Biosolids = Less Cost)
- Reestablish Organics Addition for Increased Revenue and Biogas Generation
- Utilize Existing Asset to Generate More Biogas (More Biogas = Increased Revenue Opportunities)



Biosolids Improvements Project Update

- ▶ Preliminary Design has been completed and reviewed with City Staff
- ▶ Improvements contained within the project fall into three (3) categories:
 - ▶ Required Regulatory and Safety Improvements
 - ▶ Increased Reliability Improvements
 - ▶ Replacement of Failed Components



Required Regulatory and Safety Improvements

- ▶ Relocation of the Water Treatment Plant Transformer
- ▶ Fire Protection and Hazardous Environment Monitoring
- ▶ Gas Metering for Air Permit
- ▶ Replacement of Biogas Lines w code compliant materials
- ▶ Biogas Mixing System for Increased Solids Destruction to maintain Class A Sludge compliance



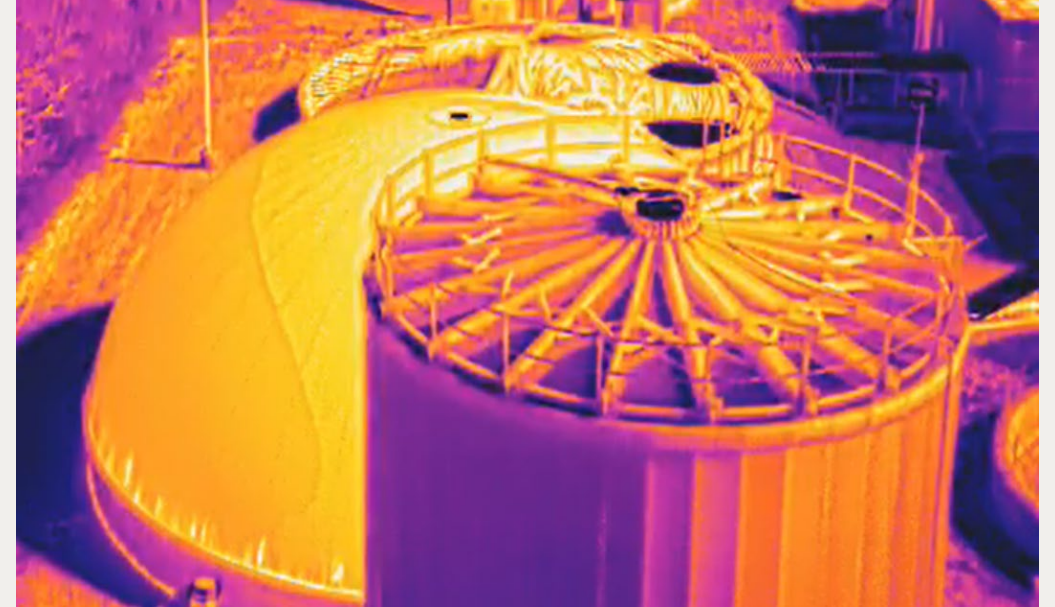
Increased Reliability Improvements

- ▶ Equipment and Structure for Organics Receiving
- ▶ Conversion of Thermophilic Digestion Process to Temperature Phased Process to improve reliability and Biogas Production
- ▶ Addition of Sludge Pumps and Boiler Hot Water Pumps to eliminate single points of failure
- ▶ Biogas Conditioning System to allow the City to proceed with Renewable Natural Gas conversion for pipeline injection or future electricity generation

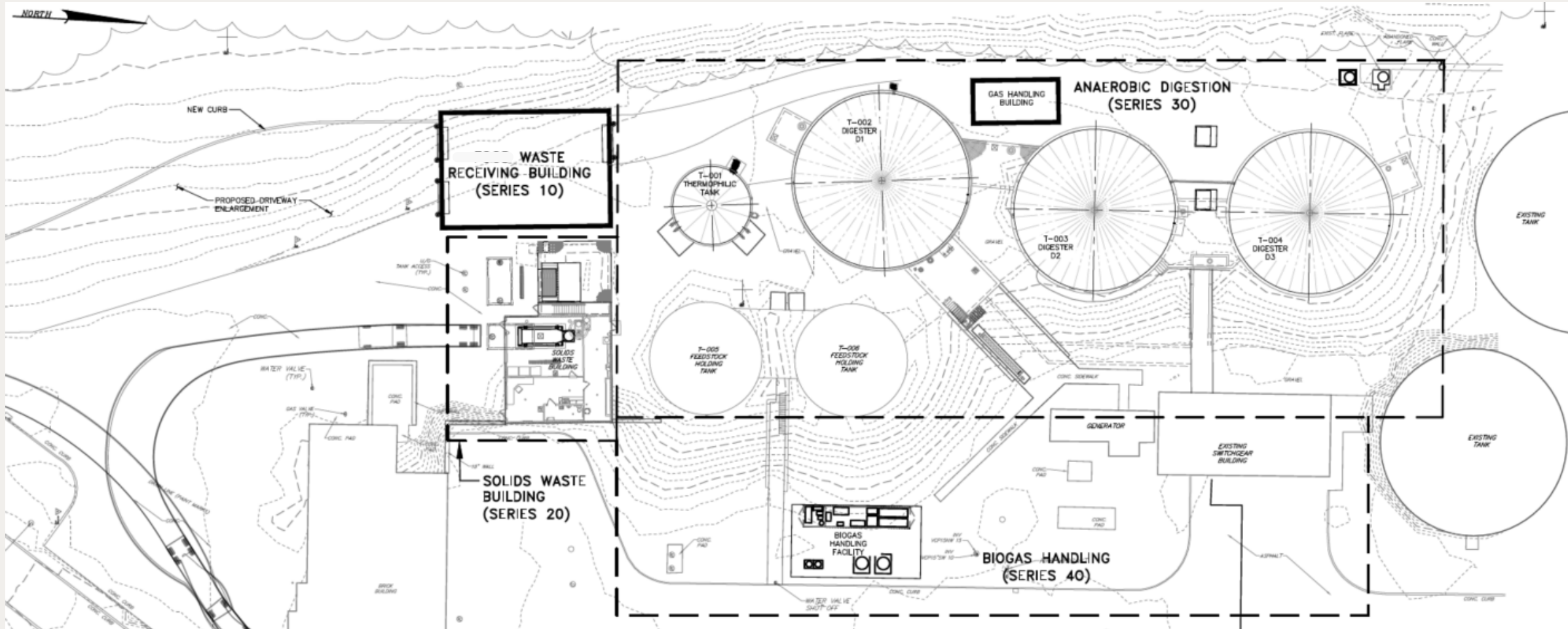


Replacement of Failed Components

- ▶ Replacement of Biogas Flare
- ▶ Replacement of Failed/Failing Biogas Storage Covers
- ▶ Replacement of Gravity Belt Thickener
- ▶ Replacement of Heat Exchangers



Proposed Site Plan



Costs of Biosolids Improvement Project

- ▶ Estimated Total Construction Cost \$5,700,000
 - ▶ Required Regulatory and Safety Improvements \$1,700,000
 - ▶ Increased Reliability Improvements \$1,900,000
 - ▶ Replacement of Failed Components \$2,100,000
- ▶ Previous Estimated Total Construction Cost \$3,600,000
- ▶ Major Cost Changes from Previous Project Review
 - ▶ Replacement of Biogas Covers ~\$1,100,000
 - ▶ Replacement of Gravity Belt Thickener ~\$320,000
 - ▶ Replacement of Heat Exchanger ~\$100,000
 - ▶ Installation of Above Components and Related Costs ~\$250,000
 - ▶ Construction Cost Inflation ~\$300,000



Benefits of Biosolids Improvement Project

- ▶ While Project Costs have risen, the Biosolids Project fundamentals have improved due to the following:
 - ▶ Energy Costs – Many of the improvements related to the project reduce operational energy costs related to heating of the digestion process, electricity consumption and reduction of biosolids for disposal. While fuel, electricity and natural gas costs all are rising, this project reduces the City's consumption of these items and provides increased payback for the capital expenditure
 - ▶ Energy and Organics Value – By reinstating the organics receiving program, the City can return to profitable tipping fees and increased biogas production. This biogas, once cleaned and distributed, has gained significant value over the last several years. In 2018, the value of the Biogas to the City was \$4.00/dkthm and now has likely risen to over \$14.00/dkthm. These will provide enhanced revenue to the City
 - ▶ Range of Operational Cost Savings/Increased Revenue \$1.6mm to \$2.1mm



Next Steps

- ▶ Project Permits submitted to the OH EPA June 2022
- ▶ Final Construction Bidding Documents September 2022
- ▶ Receive Permits for Project October 2022
- ▶ Bidding of Project Improvements November 2022



WRF Priority 1 Aeration Improvement

- Due to failure of tank 5 (VLR style 1, 2, 5) organic treatment capacity was reduced by 1/5 causing nitrification/ammonia permit violations and no septage receiving due to noncompliance
- Failure November 2021, Council approved design contract with Jones and Henry February 2022
 - Phase 1 Design-PTI to OEPA by July 2022
- Convert tank to extended aeration with diffused air and remove current components (\$200,000) with construction bid soon.
 - Phase 2, TBD tank 1 and 2 replacement in kind (\$400,000)
 - Phase 3, TBD repair and install pipes for full use of clarifier 5 and 6 (\$250,000)
- Total cost estimate of all considerations \$850,000

WRF Priority 2 Biosolids Improvement

- Focus is to address issues with the biosolids treatment facility, due to end of life equipment outside waste acceptance stopped in June 2021
- Project Focus
 - Relocation of the Water Treatment Plant Transformer
 - Fire Protection and Hazardous Environment Monitoring
 - Gas Metering for Air Permit
 - Replacement of Biogas Lines w code compliant materials
 - Biogas Mixing System for Increased Solids Destruction to maintain Class A Sludge compliance
 - Additional needs; Biogas covers, belt thickener, heat exchanger, and organics receiving equipment
 - Total estimated cost 5.7 million, with current 2.1 million in the budget

WRF Priority 3 Headworks Improvement

- Due to major failures of the screening equipment on two occasions, prior to 15 years of service, this equipment is at end of life.
 - The equipment was improperly sized and not able to accommodate plant flow
 - The equipment did not meet standards along with no grit removal
 - The alterations will require pump improvements that were not addressed in previous upgrades
 - Drawings and PTI end of 3rd quarter with a estimated budget of 5 million dollars

WRF Priority 4 Disinfection Study

- Due to current equipment designed for drinking water quality, the system is unreliable and has reached end of life
 - Study underway to determine best option and configuration at the facility
 - Evaluation of a wastewater specific UV system
 - Evaluation for chemical use and study for a single additive for disinfection
 - Final design, construction scope, and cost TBD

Water Production Facility

- Project consideration
 - Filter expansion and media replacement
 - Lime press or blending of both facility residuals